

Docket # P11495

Serial No. 09/964,765

Claim Amendments

1-30. (Canceled)

31. (Currently amended): A graphics controller comprising:

a register to store a value that identifies a variable format;

a W-buffer to store normalized W values for pixels of an image in a the variable format specified by the value stored in the register; and

a depth tester to determine whether a current pixel is occluded by a previous pixel based upon a normalized W value of the W-buffer for the previous pixel.

32. (Previously presented): The graphics controller of claim 31, further comprising a depth interpolator to generate normalized W values for pixels of the image that are indicative of a depth of each pixel.

33. (Previously presented): The graphics controller of claim 32 further comprising a write format converter to receive the normalized W values from the depth interpolator and to write the normalized W values to the W-buffer in the variable format.

34. (Currently Amended): The graphics controller of claim 32 ~~further comprising~~ wherein

the a register that identifies via the value stored therein a number of fraction bits and a number of exponent bits for the variable format of the W-buffer, and

the graphics controller further comprises a write format converter to receive the normalized W values from the depth interpolator and to write the normalized W values to the W-buffer using the number of fraction bits and the number of exponent bits identified by the register.

35. (Previously presented): The graphics controller of claim 32 further comprising

Docket # P11495

Serial No. 09/964,765

a write format converter to write the normalized W values to the W-buffer in the variable format, and

a read format converter to read the normalized W values from the W-buffer in the variable format and to provide the normalized W values to the depth tester in a predetermined format.

36. (Currently Amended): A method comprising generating a plurality of normalized W values representative of pixel depths of an image,

storing a value that is dependent upon depth parameters of the image and that is indicative of a floating point format,

converting the normalized W values to a the floating point format that is dependent upon depth parameters of the image, and

storing the normalized W values using the floating point format.

37. (Previously presented): The method of claim 36 further comprising determining whether a pixel is occluded by another pixel based upon a stored normalized W value for the another pixel.

38. (Previously presented): The method of claim 37 further comprising displaying non-occluded pixels of the image.

39. (Previously presented): The method of claim 36 further comprising determining a number of fraction bits and a number of exponent bits for the floating point format.

40. (Previously presented): The method of claim 36 further comprising determining a number of fraction bits and a number of exponent bits for the floating point format based upon depth parameters of the image.

Docket # P11495

Serial No. 09/964,765

41. (Previously presented): The method of claim 36 further comprising determining a number of fraction bits and a number of exponent bits for the floating point format based upon a ratio between a near depth value associated with a near plane of the image and a far depth value associated with a far plane of the image.

42. (Currently Amended): A system comprising a display device to display pixels of an image, a register to store a value that identifies a variable format, a W-buffer to store normalized W values for pixels of an image in the variable format specified by the value stored in the register, a variable format; a depth tester to determine whether a current pixel is occluded by a previous pixel based upon a normalized W value of the W-buffer for the previous pixel, and a display engine to provide the display device with non-occluded pixels of the image.

43. (Previously presented): The system of claim 42 further comprising a depth interpolator to generate normalized W values for pixels of the image that are indicative of a depth of each pixel.

44. (Currently Amended): The system of claim 42 43 further comprising a write format converter to receive the normalized W values from the depth interpolator and to write the normalized W values to the W-buffer in the variable format.

45. (Currently Amended): The system of claim 42 further comprising a wherein the register that identifies via the value stored therein a number of fraction bits and a number of exponent bits for the variable format of the W-buffer, and a write format converter to write the normalized W values to the W-buffer using the number of fraction bits and the number of exponent bits identified by the register.

Docket # P11495

Serial No. 09/964,765

46. (Previously presented): The system of claim 42 further comprising a write format converter to write the normalized W values to the W-buffer in the variable format, and

a read format converter to read the normalized W values from the W-buffer in the variable format and to provide the normalized W values to the depth tester in a predetermined format.

47. (Previously presented): The system of claim 44 further comprising a processor to determine a number of fraction bits and a number of exponent bits for the variable format of the W-buffer and to write one or more values to the register to identify the number of fraction bits and the number of exponent bits for the variable format of the W-buffer.

48. (Previously presented): The system of claim 44 further comprising a processor to

determine a number of fraction bits and a number of exponent bits for the variable format of the W-buffer based upon depth parameters of the image, and write one or more values to the register to identify the number of fraction bits and the number of exponents bits for the variable format of the W-buffer.

determining a number of fraction bits and a number of exponent bits for the floating point format.

49. (Currently Amended): The system of claim 44 further comprising a processor to

determine a number of fraction bits and a number of exponent bits for the variable format of the W-buffer based upon a ratio ration between a near depth value

Docket # P11495

Serial No. 09/964,765

associated with a near plane of the image and a far depth value associated with a far plane of the image, and

write one or more values to the register to identify the number of fraction bits and the number of exponents bits for the variable format of the W-buffer.

50. (Currently Amended): A machine readable medium comprising a plurality of instructions that in response to being executed result in a computer system

determining, based upon a first image, a first floating point format for normalized W values of the first image, and

configuring a W-buffer to store the normalized W values of the first image using the first floating point format by storing a first value indicative of the first floating point format.

51. (Currently Amended): The machine readable medium of claim 50 wherein the plurality of instructions further result in the computer system

determining, based upon a second image, a second floating point format for normalized W values of the second image, and

configuring the W-buffer to store normalized W values of the second image using the second floating point format by storing a second value indicative of the second floating point format.

52. (Previously presented): The machine readable medium of claim 51 wherein the plurality of instructions further result in the computer system

determining, based upon depth parameters of the first image, a first number of fraction bits and a first number of exponent bits for the first floating point format, and

Docket # P11495

Serial No. 09/964,765

determining, based upon depth parameters of the second image, a second number of fraction bits and a second number of exponent bits for the second floating point format.

53. (Previously presented): The machine readable medium of claim 51 wherein the plurality of instructions further result in the computer system

determining, based upon a first ratio between a first near depth value associated with a first near plane of the first image and a first far depth value associated with a first far plane of the first image, a first number of fraction bits and a first number of exponent bits for the first floating point format, and

determining, based upon a second ratio between a second near depth value associated with a second near plane of the second image and a second far depth value associated with a second far plane of the second image, a second number of fraction bits and a second number of exponent bits for the second floating point format.